



### Creative University-School Partnerships (CUSP)

East Orange	Park Ridge
Englewood Cliffs	Passaic Valley RHS
Franklin Lakes	Ridgefield
Hackensack	Rutherford
Hillsdale	Saddle River
Leonia	Teaneck
Little Fall	Totowa
Lodi	Wayne
Lyndhurst	West Orange
Montclair	West Paterson
Orange	MSU

CUSP is a partnership of a research and teaching university (MSU) with a diverse group of school districts in Bergen, Essex, and Passaic counties. CUSP is a comprehensive project that addresses educational needs using research-based pedagogies.

#### CUSP Project Activities

- Summer Institute
- Distance Learning
- Content-based workshops
- Videoconferencing
- Adopt-a-professor
- Math & Science courses
- Assistance in achieving HQT status in math and science
- Classroom visiting teams

#### EVENTS AND IMPORTANT DATES

Apr. 27 - PRISM Partners meeting/workshop 9 am - 2 pm on Nature of Inquiry Science. David Marsland & Henry Milne of the National Science Resources Center and Sande Sparkman of the Center for Science Literacy will present. Bristol-Myers Squibb Center, Blanton Hall - Atrium.

May 23 - 25 Hands and Minds Together, National Science and Mathematics Conference, MSU Student Center and Annex (SC).

### Hands and Minds Together

Leaving No Child Behind in Science & Mathematics  
National Science and Mathematics Conferences  
Montclair State University, NJ May 23 - 25 2005  
Register online at [www.tlcpd.com](http://www.tlcpd.com)

### PRISM CONFERENCE HIGHLIGHTS SCIENCE & MATH

PRISM and Montclair State University will host a 3 day conference - Monday, May 23 through Wednesday, May 25 - on improving science and mathematics instruction for grades 5 – 9. **Hands and Minds Together**, *Leaving No Child Behind in Science and Mathematics* begins on the 23rd at 2:00 pm with a **What Works! Showcase**, free to all registered conference attendees. The Showcase spotlights classrooms and schools where great strides have been made in student learning. Participants will have the opportunity to speak with teachers and administrators who “think outside of the box” and discuss implementation and replication of these programs in other classrooms and schools. This session ends at 8:00 pm.

The conference has concurrent Science and Mathematics workshops from 11:30 am to 1:00 pm and 2:30 pm to 4:00 pm on Tuesday the 24<sup>th</sup> and Wednesday the 25<sup>th</sup>. A keynote address is scheduled each day from 9:00 am to 11:00 am. All sessions will be held in the Student Center and Annex.

On Tuesday, MSU Professor Dr. Evan Maletsky will present the Mathematics Keynote address. Entitled **“Try a FrogFest to Teach Big Ideas in Mathematics,”** Dr. Maletsky will show how a simple on-going theme, such as frogs, can serve as a springboard for a variety of activities and topics. On-going themes allow instructors to target various grade levels covering everything from basic skills to problem solving. Participants should come prepared for hands-on FrogFest activities.

Concurrently on Tuesday Dr. Ann Benbow and Colin Mably are the Science Keynoters. Dr. Benbow and Mr. Mably are renowned educators, authors, and National Science Foundation curriculum developers. **“Managing Uncertainty with Inquiry Based Science Curricula”** will address how to intellectually and practically manage change in science education. They will explore the problems of making the leap from the acceptance of inquiry-based science teaching and learning, to actually doing it.

On Wednesday, the Mathematics Keynote speaker will be MSU Professor Dr. Ken Wolff. Dr. Wolff’s topic is **“Changing Mathematics Classrooms,”** an examination of the recommended middle school mathematics curriculum. Lessons that address key concepts prompted by the National Council of Teachers of Mathematics will be highlighted. New Jersey Core Curriculum Content Standards in Math will be featured as well.

University of California Professor Emeritus Dr. Lawrence Lowery will present the Science Keynote address on Wednesday. Dr. Lowery, originator of the **Full Option Science System (FOSS)**, will speak about **“Applying Brain Based Research in Curriculum Design.”** As classroom practice rarely aligns with what we know about the process of learning, Dr. Lowery shows how to use brain-based research to inform your science curriculum design decisions. Hands-on constructivist activities will provide strategies that help students learn science concepts and the process of inquiry.

The final assembly on Wednesday May 25 is a plenary session titled **“Taking It All Back Home.”** The presenter, Dr. James Greenberg of the University of Maryland, will synthesize the conference components to assist participants in taking concepts and approaches back to their schools and districts. Follow up steps will be addressed and fostered to assist in classroom implementation.

**MATH Breakout Sessions, Tuesday, May 24<sup>th</sup>.**  
**Each Workshop Has Two Sessions,**  
**11:30 am to 1:00 pm**  
**and 2:30 pm to 4:00 pm**

**TEACHING MEASUREMENT AND TRIGONOMETRY WITH A HYPSONETER:**

**Kevin Killian.** Attendees will use common school supplies to build a simple hypsoneter, a device for measuring angles of elevation and depression, to measure objects inside and outside the room. Trigonometry and geometry will be used to calculate the height of the objects.

**MIDDLE SCHOOL PREP FOR NJ STATEWIDE MATH ASSESSMENTS: Dr. Robert Riehs.** This session emphasizes the use of inexpensive manipulatives to prepare students for the GEPA and future NJ ASK 5, NJ ASK6, and NJ ASK 7.

**ALGEBRA IN GRADES 7-12: MAKE IT CONCRETE! Nancy Schultz.** Learn how to make the abstract nature of algebra more understandable. Hands-on activities and investigations will model algebraic formulas and topics.

**MATHEMATICAL CONTORTIONS: Dr. Mika Munakata.** Twelve activity stations will challenge participants to solve mind-stretching, hands-on topological problems suited for grades 5-12.

**INTRODUCTORY GEOMETERS SKETCHPAD: Dr. Gideon Weinstein.** This session is a gentle but broad immersion into Geometer's Sketchpad for the inexperienced or uncertain user. Hands-on experience and take-home lesson plans will be provided.

**EXPLORING PROBABILITY WITH PLAYING CARDS, DICE AND COINS: Dr. George Pangalos.** This presentation of probability uses playing cards, dice, and coins to teach students to appreciate what is "likely" and what "may not" happen.

**MATH Breakout Sessions Wednesday, May 25<sup>th</sup>.**  
**Each Workshop Has Two Sessions,**  
**11:30 am to 1:00 pm**  
**and 2:30 pm to 4:00 pm.**

**USING TECHNOLOGY TO SUPPORT THE TEACHING AND LEARNING OF MATHEMATICS:**

**Dr. Kenneth Wolff.** Participate in hands-on discovery-based lessons developed and tested by participants in the Teaching Middle Grades Mathematics programs. The TI-83+ graphing calculator, Geometer's Sketchpad, and Excel are technologies used in this session.

**ALGEBRA: NOT JUST FOR HIGH SCHOOL ANYMORE!: Nancy Schultz.** A how to session on teaching the algebra strand in grades 3-6. Learn how the beginnings of algebraic thinking will enhance student performances in later grades.

**PARADOXES GALORE: Dr. Mika Munakata.** Explore mind-boggling paradoxes in Mathematics. Special attention will be given to how these paradoxes can be used in the classroom to motivate student interest in math.

**IMPLEMENTING CHANGE IN MATHEMATICS CURRICULUM: Dr. Timothy Geary and Barbara Weller.** Implementing change in mathematics curriculum is never easy. Learn how two different districts have successfully approached the issues and have instituted long-term improvements in their schools.

**RIDE TO LEARN: THE SEGWAY AS A TEACHING TOOL IN MATHEMATICS: Dr. Dean Hamden.** The Segway is a single passenger mode of transportation that takes advantage of NASA technology, including "gyroscopes", brushless motors, and balance sensors. The Segway also presents an exciting opportunity to clearly demonstrate and teach physical science in a highly dramatic manner: A ride to learn!

**SELF-ASSESSMENT OF MATHEMATICAL SOPHISTICATION AND TEACHING PHILOSOPHY:**

**Dr. Gideon Weinstein.** What are your beliefs about mathematics, and does that affect the way you teach? Learn how to diagnose destructive and constructive beliefs about math and its teaching and then apply those skills to learn how to be a more effective teacher.

**THE TRUTH ABOUT SURVEYS: Dr. George Pangalos.** A presentation on how surveys can be tailored to prove a predetermined point of view by having students develop, carry out and analyze the results of a survey.

**SCIENCE Breakout Sessions Tuesday, May 24<sup>th</sup>.**  
**Each Workshop has Two Sessions,**  
**11:30 am to 1:00 pm**  
**and 2:30 pm to 4:00 pm**

**INQUIRY-BASED MIDDLE SCHOOL SCIENCE:** *Dr. Tom Hsu.* In this hands-on workshop, work with timers and a cart and track to explore topics in forces and motion. The session models exemplary instructional techniques as it covers content in a way that you can immediately transfer to the classroom.

**FIELD EXPERIENCES IN EARTH SCIENCE:** *Earl Verbeek.* Learn about field-based, hands-on opportunities for earth-science instruction at the Sterling Hill Mining Museum in Ogdensburg, NJ. Topics will include stream sampling, properties of minerals, and the geology of a premiere zinc mine.

**HOW DO TEACHER BELIEFS AND ATTITUDES IMPACT CLASSROOM REFORM EFFORTS?**  
*Beth Ebler and Alison Heinzl.* This hands-on presentation targets some problem areas in school reform in science and offers approaches and solutions.

**JASON EXPEDITIONS: PROMOTING INQUIRY THROUGH JASON:** A 16-year project in science curriculum development in expedition format. Learn how the program promotes inquiry approaches in classroom science units, grades 5-10.

**THE SEGWAY AS A TEACHING TOOL IN SCIENCE:** *Dr. Dean Hamden.* The segway is a single passenger mode of transportation that takes advantage of NASA technology, including “gyroscopes”, brushless motors, and balance sensors. The Segway also presents an exciting opportunity to clearly demonstrate and teach physical science in a highly dramatic manner: A ride to learn!

**JUST BECAUSE WE GIVE KIDS PROBLEMS TO SOLVE DOESN'T MEAN WE ARE TEACHING THEM TO BE PROBLEM SOLVERS:** *Dr. Vince Walencik.* With emphasis on problem solving, educators need to be comfortable and knowledgeable about strategies that can promote problem-solving skills in their students and themselves. This is a hands-on, risk taking, problem based workshop.

**SCIENCE Breakout Sessions Wednesday, May 25<sup>th</sup>.**  
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**and 2:30 pm to 4:00 pm.**

**ROBOT TECHNOLOGY TO DEVELOP PROBLEM-SOLVING SKILLS:** *Joseph Komarek.* Students enjoy working with robots, and incorporating them into projects. How can robot technology be used as a means to develop imagination and promote problem-solving skills in students?

**INQUIRY IN THE PHYSICAL SCIENCES:** *Dr. Tom Hsu.* In this hands-on session you will use a practical inquiry-based program to explore sound. This session will also model a successful professional development strategy that combines learning new ideas with techniques for instruction, assessment, and classroom management.

**JUST BECAUSE WE GIVE KIDS PROBLEMS TO SOLVE DOESN'T MEAN WE ARE TEACHING THEM TO BE PROBLEM SOLVERS:** *Dr. Vince Walencik.* With emphasis on problem solving, educators need to be comfortable and knowledgeable about strategies that can promote problem-solving skills in their students and themselves. This is a hands-on, risk taking, problem based workshop.

**LEAKY BUCKETS TO STUDY INVESTIGATION METHODS AND DATA ANALYSIS:** *Kevin Killian.* How does the flow of water through a hole in the bottom of a cup depend on the height of the water in the cup? This exercise covers the scientific method, intuition, data collection, and the use of the graphing calculator to analyze the data.

**MINDS-ON SCIENCE AND TECHNOLOGY:** *Christine Pelcak.* How can teachers more effectively integrate technology into their curriculum? Combine science and technology with engaging activities that use the internet and videoconference broadcasts to enhance learning.

**STUDIES IN THE SHAPING OF LANDFORMS (EROSION):** *Anna Mazzaro.* Participants will engage in hands-on activities to observe the impact erosion has on the earth and new landforms formed as a result of erosion. Participants will use scientific thinking processes to conduct investigations and build explanations: observing, communicating, comparing, organizing and relating.

CUSP Staff

**PRISM Office:**

Jacalyn Willis, Ph.D., Dir.  
 Anna Mazza  
 Helen M. Earles, Ph.D.  
 Colette Killian  
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OUTREACH TEAM

**MATHEMATICS**

Nancy Schultz  
 Irving Barocas  
 Barbara Krukar  
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 Maria Arrabito

**SCIENCE**

Yolanda Maldonado  
 Elinor Semel  
 Anna Mazza  
 Jacalyn Willis

**ADOPT-A-PROFESSOR**

Ann Marie DiLorenzo, Ph.D.  
 Reginald Halaby, Ph.D.  
 Evan Maletsky, Ph.D.  
 Mika Munakata, Ph.D.  
 George Pangalos, Ph.D.  
 Gregory Pope, Ph.D.  
 Kenneth Wolff, Ph.D.

**CUSP**

Creative University-School Partnerships  
 PRISM Office  
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 College of Science and Mathematics  
 Blanton Hall - Atrium  
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**On the CUSP** is a vehicle for sharing program plans and events. Your contribution to **On the CUSP** is important to us. Share your school's successes! Items received by the 10th of the month will be included in the next month's issue, based upon space availability. Submissions should be identified by the district, school, principal, teacher(s), and date of event.

Send submissions to: [PRISM@mail.montclair.edu](mailto:PRISM@mail.montclair.edu)

**Math & Science Summer  
 Institutes will  
 be offered  
 August 15 - 26,  
 9:00 a.m. to 1:00 p.m.  
 Look for Details in  
 the Next Issue.**

**Conference Option**

**PRICE**

PRE-CONFERENCE SHOWCASE & EXPOSITION - MAY 23 (Free with full or one day registration)	\$29
2-DAY CONFERENCE REGISTRATION	\$279
2-DAY CONFERENCE REGISTRATION (5 OR MORE)	\$249
2-DAY CONFERENCE REGISTRATION (10 OR MORE)	\$229
1-DAY CONFERENCE REGISTRATION	\$149
1-DAY CONFERENCE REGISTRATION (5 or more)	\$129
1-DAY CONFERENCE REGISTRATION (10 or more)	\$119

Vendor presentations will be made every day of the conference.

**PRISM Partner Districts**

**Send a teacher to  
 Hands & Minds Together Conference  
 May 23-25, 2005  
 Montclair State University  
 Student Center and Annex**

**FREE**

Funds are now available to enable us to make this terrific offer:

2-Day Conference Registration - For every 3 registrations from one Partner District, the 4<sup>th</sup> registration is free. *A savings of \$279.*

1-Day Conference Registration – For every 4 registrations from one Partner District, the 5<sup>th</sup> registration is free. *A savings of \$149.*

**Hands and Minds Together: Leaving No Child Behind in Science and Mathematics** will include complimentary snack and lunch on Tuesday and Wednesday.

*To register visit [www.tlcpd.com](http://www.tlcpd.com)*

**Reminder: The next PRISM Partners meeting/workshop is Wednesday, April, 27, 2005  
 Bristol-Myers Squibb Center, Blanton Hall, Atrium**